GlobalResearch
Center for Research on Globalization

Replacing Fossil Fuel and Nuclear Power with Renewable Energy: Wind, Solar and Hydro Power

We Could Power All 50 States With Wind, Solar and Hydro

By Washington's Blog
Global Research, March 24, 2014
Washington's Blog

Region: USA
Theme: Environment, Oil and Energy

It's a MYTH that We Need Fossil Fuel Or Nuclear

The big oil, gas, coal and nuclear companies claim that we need those energy sources in order to power America.

Good news: it's a *myth*.

Mark Diesendorf – Associate Professor and Deputy Director, Institute of Environmental Studies, UNSW at the University of New South Wales – notes:

> The deniers and scoffers repeatedly utter the simplistic myth that renewable energy is intermittent and therefore cannot generate base-load (that is, 24-hour) power.
>
> Detailed computer simulations, backed up with actual experience with wind power overseas, show that the scoffers are wrong. Several countries, including Australia with its huge renewable energy resources, could make the necessary transition to an electricity generation system comprising 100 per cent renewable energy over a few decades.
>
> ***
>
> Feasibility has been established by computer simulations of electricity generation systems by several research groups around the world, including my own ...

Diesendorf gave an update earlier this month:

> Ben Elliston, Iain MacGill and I have performed thousands of computer simulations of 100% renewable electricity in the National Electricity Market(NEM), using actual hourly data on electricity demand, wind and solar power for 2010.
>
> Our latest research, available here and reported here, finds that generating systems comprising a mix of different commercially available renewable energy technologies, located on geographically dispersed sites, do not need base load power stations to achieve the same reliability as fossil-fuelled systems.

> The old myth was based on the incorrect assumption that base load demand can only be supplied by base load power stations; for example, coal in Australia and nuclear in France. However, the mix of renewable energy technologies in our computer model, which has no base load power stations, easily supplies base load demand.

Similarly, Dr. Mark Jacobson – the head of Stanford University's Atmosphere and Energy Program, who has written numerous books and hundreds of scientific papers on climate and energy, and testified before Congress numerous times on those issues – has run a series of computer simulations based on actual historical energy usage data.

Jacobson found that the U.S. can meet all of its energy needs with a mix of wind, solar and hydropower.

The difference between a failed alternative energy pipe dream and a viable alternative energy strategy is in having the right *mix* ... and that takes sophisticated computer simulations using historical data. Jacobson's study started several years ago by matching California's historical power demand with available wind, solar and other renewable energy sources:

Jacobson has now developed specific plans for *each* of the 50 states on how to do it. Click on a state to see the specific energy mix which Dr. Jacobson's team has found would provide 100% sustainable energy.

Watch this must-see 25-minute talk by Jacobson:

Jacobson also shows that the wind-water-sun combination would actually reduce electrical consumption (because it is more efficient than fossil fuels or nuclear):

And he shows that the wind-water-solar combination is superior to nuclear, "clean" coal, natural gas and biofuels. As one example, Jacobson notes that it takes at least 11 years to permit and build a nuclear plant, whereas it takes less than half that time to fire up a wind or solar farm. Between the application for a nuclear plant and flipping the switch, power is provided by conventional energy sources ... currently 55-65% coal. Nuclear also puts out much more pollution (including much more CO2) than windpower, and 1.5% of all the nuclear plants built have melted down. More information here, here and here.

A banker for one of the world's biggest banks also notes that switching to alternative energy provides *certainty* in energy pricing ... and is usually a *less expensive* source of energy when long-term costs are factored in.

So why haven't we switched? As David Letterman noted when interviewing Jacobson, the main hurdle to switching from fossil fuels and nuclear is simply that the big fossil fuel and nuclear companies would lose a lot of money, so they're fighting tooth and nail to keep the status quo.

Read our recent interview with Dr. Jacobson on a related topic.

And note that decentralizing power supplies is arguably key to protecting against terrorism, fascism and destruction of our health, environment and economy.
